FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

December 2 to December 8, 2012 (Week 49)

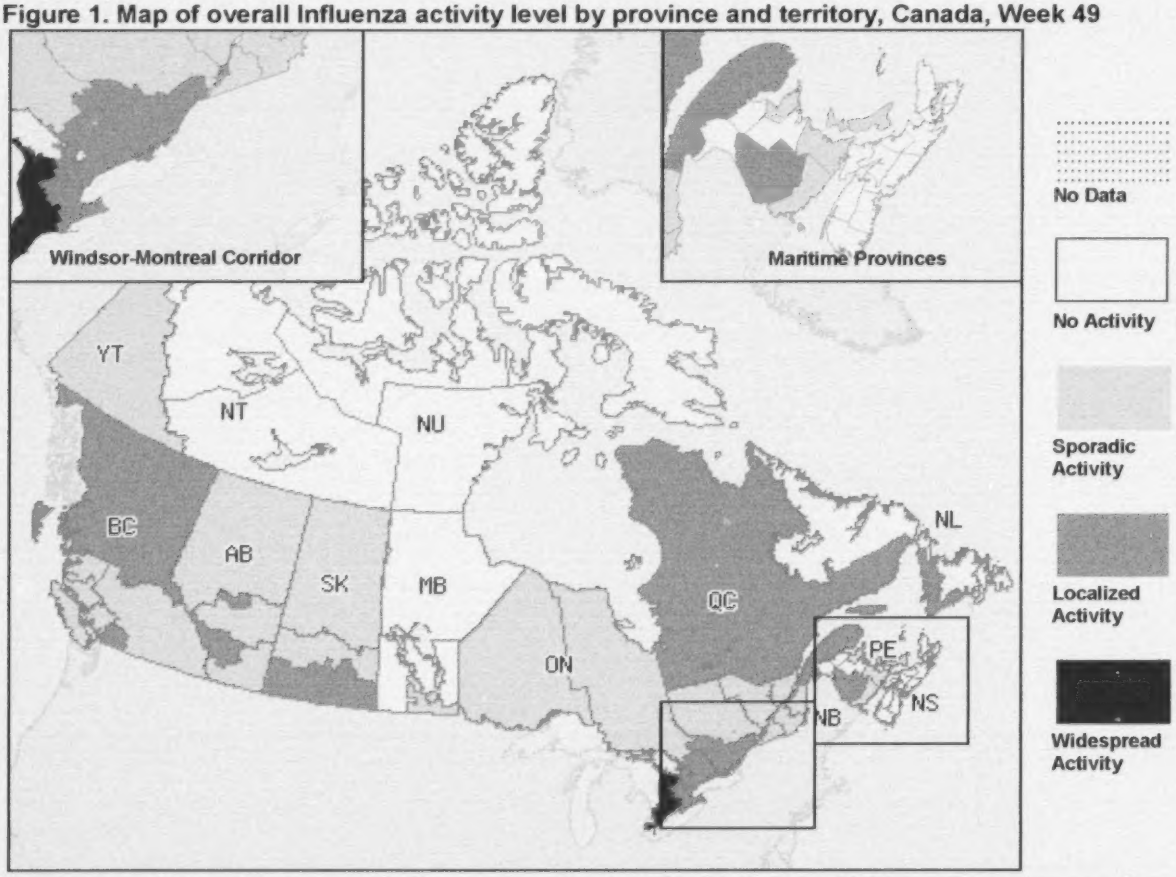
Overall Influenza Summary

- Influenza activity in Canada continued to increase in week 49; one region reported widespread activity, and more regions reported sporadic or localized activity.
- A total of 816 laboratory detections of influenza were reported, of which 96.4% were for influenza A viruses, predominantly A(H3N2).
- Twenty-two influenza outbreaks were reported: 12 in long-term-care facilities, 5 in schools and 5 in other facilities.
- Twenty-five paediatric influenza-associated hospitalizations were reported through the IMPACT network, all but one with influenza A
- Eighty-seven hospitalizations and 8 deaths in adults ≥20 years of age were reported through Aggregate surveillance, all but two with influenza A.
- The ILI consultation rate decreased compared to the previous week and is within the expected range for this time of year.

Influenza Activity (geographic spread) and Outbreaks

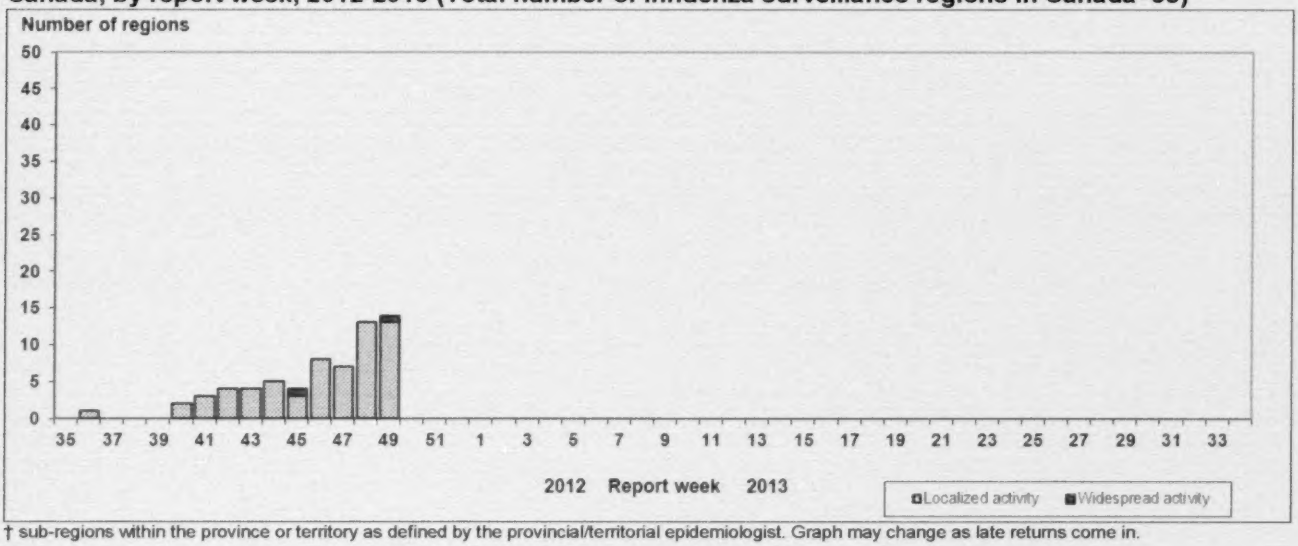
In week 49, one region [in ON] reported widespread influenza activity, 13 regions [in BC(2), AB(2), SK(1), ON(4), QC(2), NB(1) and NL(1)] reported localized activity, 21 regions [in BC(3), AB(3), SK(2), MB(2), ON(2), QC(4), NB(3), PE(1), and YK(1)] reported sporadic activity and the rest reported no activity (Figures 1 and 2). Twenty-two new influenza outbreaks were reported in week 49: 12 in long-term-care facilities [in BC(2), AB(1), SK(2), ON(5), and QC(2)], five in schools [in BC(2), AB(2) and NB(1)], and 5 in other facilities [in ON(4) and NL(1)] (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 49



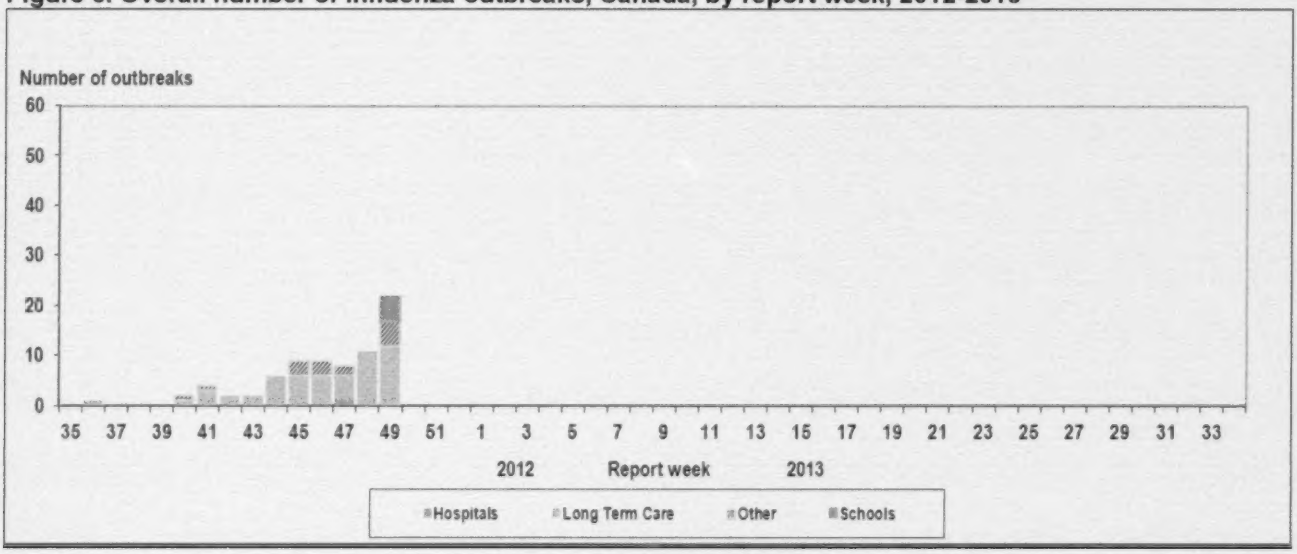
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests increased from 11.7% in week 48 to 17.8% in week 49 (Figure 4). Among the influenza viruses detected this week (n=816), 96.4% were positive for influenza A viruses [of which 46.3% were A(H3), 1.8% were A(H1N1)pdm09, and 52.0% were A(unsubtyped)]; and 3.6% were positive for influenza B (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 96.0% influenza A [55.7% A(H3), 2.1% A(H1N1)pdm09 and 42.2% A(unsubtyped)] and 4.0% influenza B (Table 1).

Detailed information on age and type/subtype was received for 1731 cases to date this season (Table 2).The proportions of cases by age group were as follows: 14.4% were < 5 years; 12.1% were between 5-19 years; 18.5% were between 20-44 years; 16.9% were between 45-64 years of age; 38.1% were ≥ 65 years.

The percentage of tests positive for RSV continued to increase, from 6.8% in week 48 to 8.5% in week 49, primarily due to increases in detections in the Prairie Provinces. The percentage positive for rhinovirus continued to decline to 9.3%. Parainfluenza detections declined slightly (from 4.6% to 3.8%) and coronavirus detections increased slightly (from 3.4% to 4.1%). Other percentages of positive tests remained low: adenovirus 1.2%; hMPV 0.8% (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	December 2 to December 8, 2012						Cumulative (August 26, 2012 to December 8, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	6	0	6	0	0	0	76	0	70	0	6	8
AB	97	0	74	1	22	9	337	0	291	12	34	20
SK	41	0	36	1	4	2	103	0	89	1	13	8
MB	4	0	4	0	0	0	18	0	17	0	1	3
ON	289	0	212	10	67	9	701	0	532	24	145	19
QC	342	0	30	0	312	9	622	0	36	0	586	21
NB	5	0	1	2	2	0	8	0	2	3	3	0
NS	0	0	0	0	0	0	0	0	0	0	0	0
PE	1	0	1	0	0	0	4	0	4	0	0	0
NL	2	0	0	0	2	0	5	0	2	0	3	0
Canada	**787**	**0**	**364**	**14**	**409**	**29**	**1874**	**0**	**1043**	**40**	**791**	**79**

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (December 2 to December 8, 2012)					Cumulative (Aug. 26, 2012 to December 8, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	88	2	40	46	5	238	8	139	91	12
5-19	59	0	30	29	4	197	0	138	59	13
20-44	104	1	38	65	4	308	11	176	121	12
45-64	86	1	26	59	3	273	6	152	115	19
65+	202	1	65	136	1	654	5	350	299	5
Unknown	1	0	1	0	0	5	0	4	1	0
Total	**540**	**5**	**200**	**335**	**17**	**1675**	**30**	**959**	**686**	**61**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

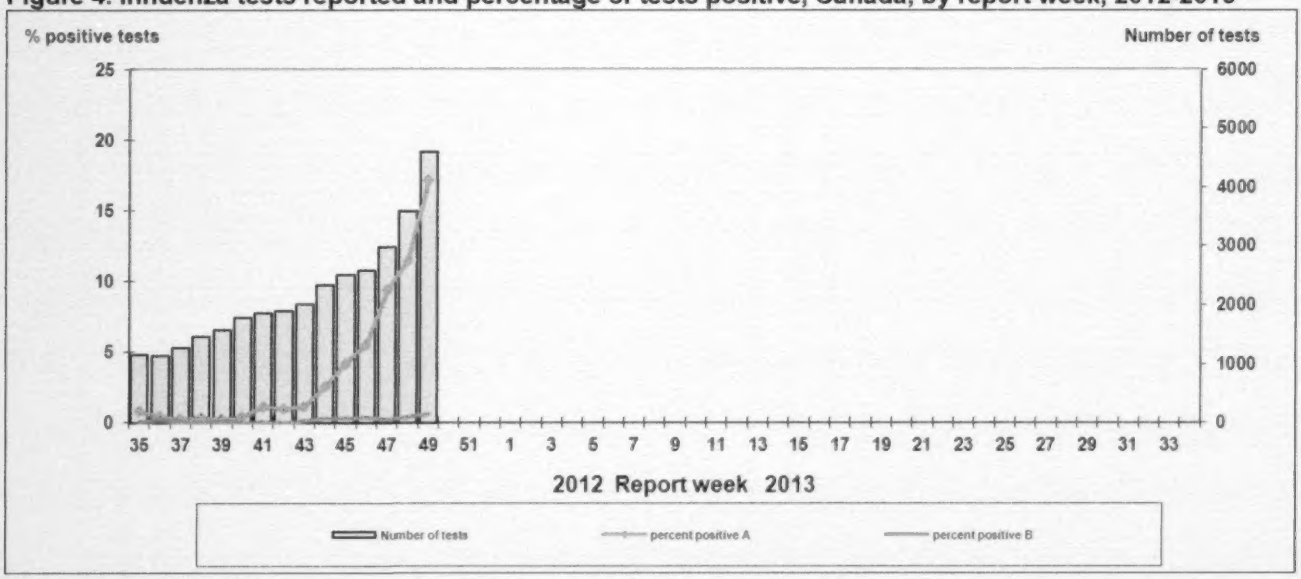
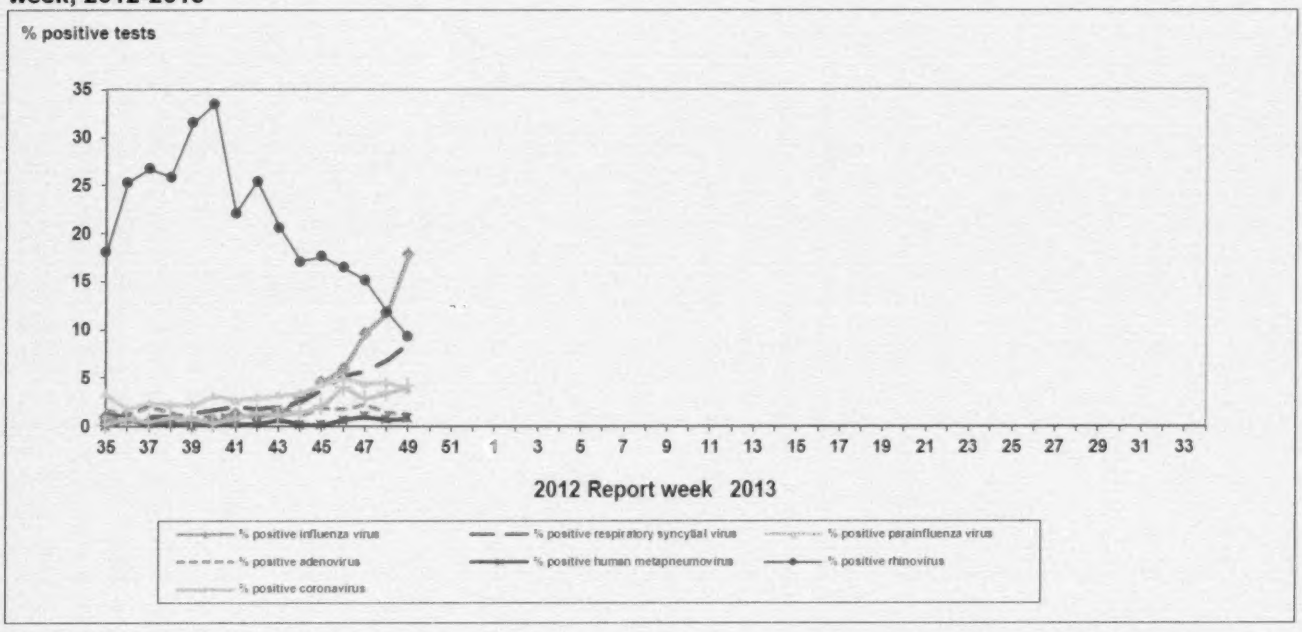


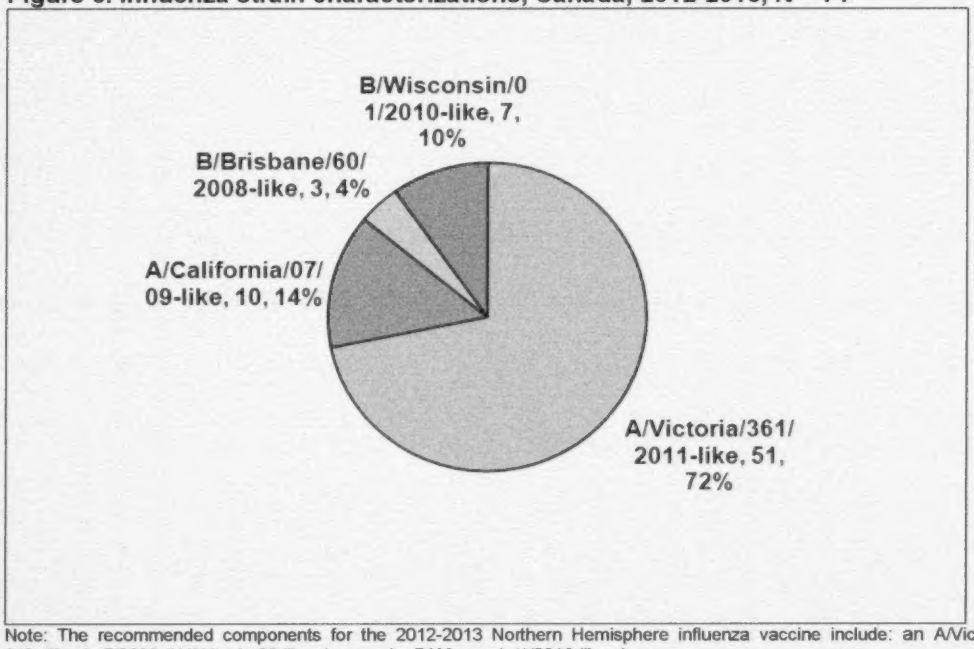
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 71 influenza viruses [51 A(H3N2), 10 A(H1N1)pdm09 , and 10 influenza B]. The 51 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011. The 10 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, seven were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and three were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 71



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

Since the beginning of the season, NML has tested 70 influenza viruses for resistance to oseltamivir, and 69 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 102 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

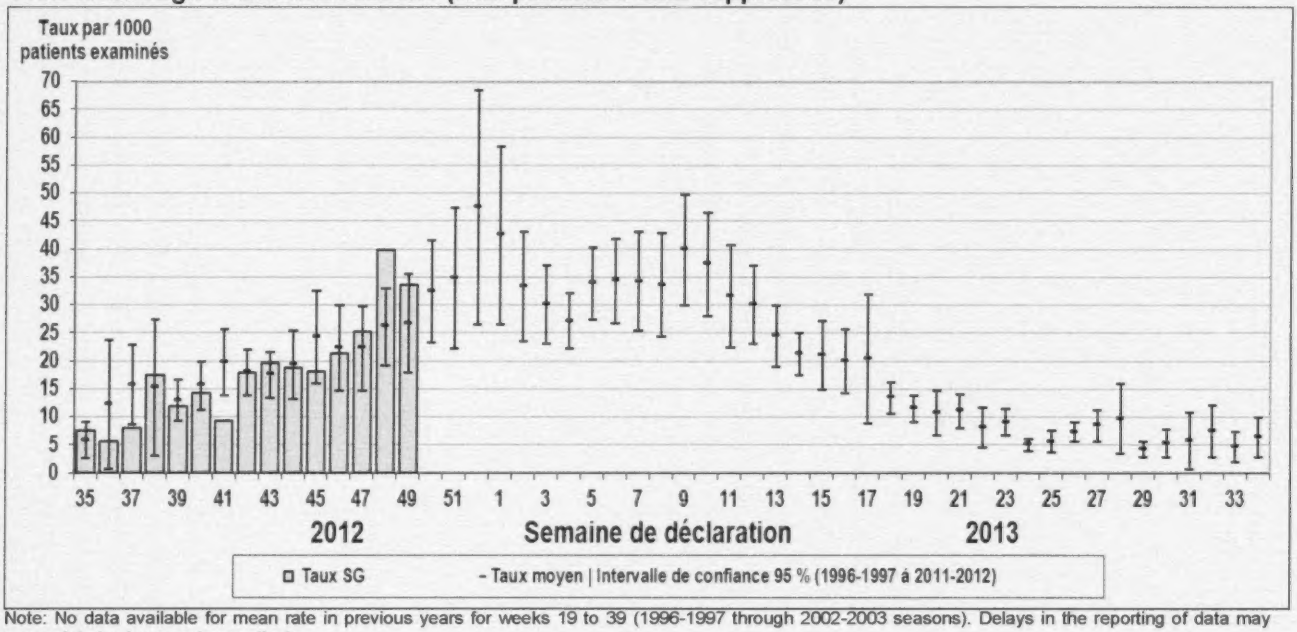
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	49	0	48	0	95	95 (100%)
A (H1N1)	11	0	11	0	7	7
B	10	0	10	0	NA*	NA*
TOTAL	70	0	69	0	102	102 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate in week 49 decreased from the previous week: from 39.8 to 33.6 ILI consultations per 1,000 patient visits, which is within the expected level for this time of year (Figure 7). The highest consultation rates were observed in children <5 years of age (57.0/1,000) followed by children 5-19 years of age (53.5/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

The Canadian antiviral prescription rate continued to increase in week 49 to 71.8 antiviral prescriptions per 100,000 new prescriptions dispensed. The current rate of 71.8/100,000 is slightly higher than expected based on the current percentage of positive laboratory tests for influenza, and closer to the rate observed when the percentage of influenza detections was approximately 20% (data from April 2011 to present). Rates of 50-100/100,000 were observed during the peak period during the 2011-12 influenza season, when the percentage of positive influenza tests was between 18%-24%. In week 49, the highest antiviral prescription rate was among children at 122.3/100,000.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)
In week 49, 25 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network: seven from AB, one from MB, six from ON, and eleven from QC. Among the 24 cases identified with influenza A, 20 were A(unsubtyped) and 4 were A(H3N2). One case was identified with influenza B. The age distribution is as follows: four under 6 months of age, nine between 6-23 months, four aged 2-4 years, six aged 5-9 years, and two aged 10-16 years. No ICU admissions or deaths were reported this week.

Since the start of the 2012-13 season, a total of 54 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 51 (94.4%) with influenza A [of which 12 (23.5%) were A(H3N2) and 39 (76.5%) were A(unsubtyped)], and three (5.6%) with influenza B. The distribution of cases by age group is as follows: 9 (16.7%) <6 months of age, 13 (24.1%) age 6-23 months, 14 (25.9%) age 2-4 years, 10 (18.5%) age 5-9 years, and 8 (14.8%) age 10-16 years. Five of the 54 cases (9.3%) were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associate paediatric hospitalizations in Canada.

Influenza Hospitalizations and Deaths (Aggregate Surveillance System)
In week 49, 112 laboratory confirmed influenza associated hospitalizations were reported [AB(12), ON(100)]. Three were influenza B, and 109 were influenza A. Of the 109 influenza A associated hospitalizations, 46% (50/109) were A(H3) and the remaining were A(unsubtyped). Almost half of the cases (49.5% 55/111) were aged 65+ and 22.5% (25/111) were aged between 45-64 years. Of the 12 cases with available data (from Alberta), none were admitted to the Intensive Care Unit (ICU). Nine deaths were reported in Ontario, all in influenza A cases: one A(unsubtyped) aged 1-4 years; one A(unsubtyped) aged 20-44 years; and 7 in persons aged ≥65 years [(3 A(H3) and 4 A(unsubtyped)].

To date this season, 224 influenza-associated hospitalizations have been reported. The majority of cases have been influenza A (97%, 217/224). Approximately half of the cases (52%, 116/223) are ≥ 65 years of age. Of the 136 influenza A hospitalizations for which subtype was available, 6.6% (9/136) were due to influenza A(H1N1)pdm09, and 88.2% (120/136) were due to A(H3). Among the 70 cases with available data, there have been 9 hospitalisations for which admission to ICU was required, four (44.4%) were persons ≥ 65 years of age. To date this season, 15 deaths have been reported: all in influenza A cases (7 A(H3); 8 A(unsubtyped)).

Note: The number of influenza-associated hospitalizations reported by the Aggregate Surveillance System may include cases reported by the IMPACT network. Note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: While countries in North America report the start of the influenza season, differences have been observed in the proportion of circulating strains. In Canada A(H3N2) predominates, in the United States a mix of A(H3N2) and influenza B have been detected, and in Mexico influenza B is predominant. Influenza activity in Europe remains low, but some countries report increasing detections. To date this season European countries report circulation of almost equal proportions of influenza A and B, with A(H3N2) being the predominant influenza A subtype. Influenza activity in temperate regions of Asia remains low. In tropical regions, influenza activity is continuing or declining, with the different types/subtypes predominating depending on the country; countries in Central America and the Caribbean also report circulation of RSV. Influenza activity in the temperate zone of the southern hemisphere is at inter-seasonal levels.
World Health Organization influenza update

United States: During week 49, influenza activity increased in the United States. Eighteen states reported widespread influenza activity, 17 states reported regional influenza activity, and 11 states reported local activity. The national percentage of outpatient visits for ILI is 2.8% which is above the national baseline of 2.2%. The proportion of tests positive for influenza viruses increased in week 49 (28.3%) compared to the previous week. Of the positive influenza detections, 76.2% were positive for influenza A viruses. Of the 805 influenza A viruses for which subtype information was available, 98.3% were A(H3) and 1.7% were A(H1N1)pdm09. Since October 1, 2012, the CDC has antigenically characterized 287 influenza viruses. Among influenza A viruses, 180 (94.7%) were A/Victoria/361/2011-like, two of which showed reduced titers; and 10 (5.3%) A/California/7/2009-like. Among influenza B viruses, 63 (66.3%) B/Wisconsin/01/2010-like belong to the Yamagata lineage of viruses; and 32 (33.7%) to the B/Victoria lineage. One new influenza-associated paediatric death, associated with influenza B, was reported during week 49. Six cases have been reported to date this season (four with influenza A and two with influenza B).
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 49, influenza activity in Europe remained low although an increasing number of countries across the region reported sporadic influenza activity. There is no clear predominance of influenza A or B in the region. Since week 40, 1177 specimens of influenza viruses have been typed: 58% were influenza A and 42% were influenza B. Among the 421 influenza A specimens for which subtype information was available, 57% were A(H3) and 43% were A(H1N1)pdm09. The number of sentinel specimens tested, and the proportion positive for influenza, increased among cases of influenza-like illness (ILI) and acute respiratory infection (ARI) from sentinel sources compared to the previous week (from 6.4% to 8.5%). Three hospitalizations for severe acute respiratory illness (SARI) related to influenza A were reported this week.
EuroFlu weekly electronic bulletin

Human Avian and Swine Influenza Updates

Human Avian Influenza
Since January 2012, 30 human cases of influenza A(H5N1) virus infection have been reported to WHO. The last human case with confirmed H5N1 had an onset date of 24 July 2012. No new cases were reported as of 5 November 2012.
WHO Avian influenza situation updates

Human Swine Influenza
One new human case of infection with an A(H3N2)v variant influenza virus was reported to the US CDC in week 49 from Minnesota. The case reported close contact with swine in the week prior to onset of symptoms. No further cases have been identified in contacts of the case patient.
Centers for Disease Control and Prevention seasonal influenza report

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.